

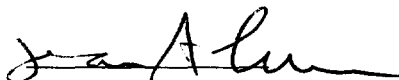
Deming's 14 Points of Management Revisited

An Honors Thesis (HONRS 499)

By

Brent J. McDade

Dr. Enar Tunc

A handwritten signature in black ink, appearing to read "Enar Tunc", with a stylized flourish at the end.

Ball State University
Muncie, Indiana

May 2003

Expected Date of Graduation: May 3, 2003

SpColl
Thesis
LD
2489
.Z4
2008
.M33

Abstract

Quality is one of the most important characteristics in products and services in order to satisfy customers. So why has it been so difficult for many organizations to improve their products and services in the past several years? Japan revolutionized the concept of quality through their products since WWII. The idea of winning orders due to superior quality came from the suggestions of many experts called into Japan, one of which was W. Edwards Deming. His major contribution was the focus on processes and leadership to ensure quality. Japan heeded Deming's suggestions and the results speak for themselves, as they spearheaded the quality revolution in the world. Organizations today need to improve their efficiency and effectiveness to retain existing customers as well as bring in new customers. This article examines how to maximize efficiency and effectiveness in organizations based on Deming's same suggestions that Japan followed fifty years ago. The purpose of this article is to provide any company with a solid foundation from which to build upon in order to compete with the best companies.

Introduction

Before the onset of WWII, Japan was viewed as a shoddy manufacturer. What was bad before the war turned into total destruction by the time the war was over. When all of the dust settled, it was clear that Japan had to rebuild their entire country from the bottom up. If there was any hope for them to rebuild, it was clear that they would have to change the way they ran their businesses, especially manufacturing.

On the other hand, after the war, Uncle Sam had no competitors in the marketplace (Lepore and Cohen 1999 p. 153). In fact, they could not produce products at the rate they were being demanded. They were the only country that did not need to rebuild its industrial marketplace. Made in the USA was something that every product was sought to have by consumers.

At this time, a statistician for the United States government, W. Edwards Deming, was busy trying to convince major United States manufacturers to change their approach to manufacturing. He warned them that if they did not change their approach, then it would catch up to them soon. However, many managers found Deming's remarks extreme and unnecessary (Lepore and Cohen 1999 p. 153).

Meanwhile, back in Japan, their leaders were trying to find a strategy that would aid them in rebuilding to a respectable level to spark their economy. One such leader, Ishikawa, had heard of Deming and his attempts in the United States, as well as his work in Japan during the war, and invited him, among others, to help build their strategy. Unlike the manufacturers in the United States, Japan was very interested in his ideas and put them into action when they began to rebuild their economy.

Fifty years later, the concept of quality has come a very long way. It has gone from being an order winner to an order qualifier, which means that just to begin to compete in today's marketplace, organizations must offer quality products and services. Having good quality in products and services no longer creates an avenue from which to procure orders, but rather it must be present to even be considered by customers. This is a reason why organizations need to refocus their continuous improvement practices to leadership and processes, and away from results and merit.

Unfortunately, in the past several years, the principles that started the total quality management movement in the United States have been forgotten. All hope is not lost for organizations that have not taken the quality initiative seriously. Revisiting the roots of total quality management will provide an awakening to the importance of process control and leadership, not just in the manufacturing world, but in all businesses.

So what is the secret? What does Deming think should be done to ensure quality and increase customer satisfaction? To Deming, quality management meant a real commitment to continuous improvement and innovation in products and services. He thought the focus should be on processes and leadership. The focus on process and leadership can really make a very positive impact on business and do a lot to improve quality, customer relations, and employee morale (Lepore and Cohen 1999 p. 159). Over the years, Deming developed what he called his fourteen points of management, a guideline to providing a good product or service. He also provided a couple of applications that solidify exactly what his fourteen points try to convey. These fourteen points and their applications are his "big" secret. It is really no secret at all, and any organization that really wants to improve should be able to adopt and follow these points

to improve their business, no matter what sector they are in. The proven results should be plenty enough to convince more companies to adopt this philosophy on running business.

The article is divided into his conceptual suggestions, namely his fourteen points of management, and his applications of his ideas and knowledge, and finally the business implications of both implementing and not implementing these points in various business sectors. This will provide a tutorial and recommendations to managers who would like to take their organization to new heights to better compete with the best performers in today's marketplace.

Deming's Fourteen Points of Management

Over the course of his life, Deming came up with fourteen points that would improve a company's current status. He stressed the importance of not just implementing one or even nine of the points, but rather all of them. Many have likened this to Sir Isaac Newton's Third Law of Physics, including Gary Landis in his article on lean manufacturing. Newton's Third Law of Physics states that for every action, there is an equal and opposite reaction. The implication of this is that if something is not going right in sales, it will affect every other aspect of the business, such as engineering, manufacturing, and customer service (Landis, 2002). Deming simply thought that if companies would implement these fourteen rather simple points, all aspects of the organization would be in sync with each other, which would make processes run much more smoothly, in turn making them much more able to satisfy customers.

The fourteen suggestions, or points, that Deming believed would bring success to any company are as follows:

1. Create a constancy of purpose toward improvement of product and service, with the aim to become competitive, stay in business, and provide jobs.
2. Adopt the new philosophy. We are in a new economic age, and western management must awaken to the challenge and must learn their responsibilities and take on leadership for change.
3. Cease dependency on inspection to achieve quality. Eliminate the need for inspection on mass basis by building quality into the product in the first place.
4. End the practice of rewarding business based on price alone. Instead, minimize total cost. Move toward a single supplier for any one item, on a long-term relationship of loyalty and trust.
5. Improve constantly and forever the system of production and service to improve quality and productivity, and thus constantly decrease cost.
6. Institute training on the job.

7. Institute leadership. The aim of leadership should be to help people, machines, and gadgets to do a better job.
8. Drive out fear, so everyone may work effectively for the company.
9. Break down barriers between departments. People in research, design, sales, and production should work as a team to anticipate production problems and problems that could occur during use that may be encountered.
10. Eliminate slogans, exhortations, and targets for the workforce asking for zero defects and new levels of productivity.
11. Eliminate work standards and quotas, and eliminate management by numbers, and numerical goals, but rather substitute leadership instead.
12. Remove barriers that rob hourly people of their right to pride of workmanship. Remove barriers that rob people in management of their right to pride of workmanship.
13. Institute a vigorous program of education and self-improvement.
14. Put everyone in the company to work to accomplish the transformation. The transformation is everyone's job.

These fourteen points can be simplified into leadership points and process points (See Table 1). The leadership points are what managers must do in order to lead and motivate workers to better the company, while process points are must be done in order to reduce variation and maximize productivity. There are many implications to both implementing these points and ignoring these points in business, and they will be discussed later. Each point deserves attention and reasoning as to why it is essential in making the business run as effectively as it possibly can. Grouping the points into these categories provides a better understanding of each point's role in the overall improvement of an organization.

Table 1

<u>Leadership Points</u>	<u>Process Points</u>
<ol style="list-style-type: none">1. Create a constancy of purpose toward the improvement of product and service, with the aim to stay competitive, stay in business, and provide jobs.2. Adopt the new philosophy. We are in a new economic age, and Western management must awaken to the challenge, learn their responsibilities, and take on leadership for change.6. Institute training on the job.7. Institute leadership. The aim of leadership should be to help people, machines, and gadgets to do a better job.8. Drive out fear, so that everyone may work effectively for the company.9. Break down barriers between departments. People in research, design, sales, and production should work as a team to foresee production problems and in use by the customer that may be encountered by a product or service.12. Remove barriers that rob hourly people as well as people in management their right to pride of workmanship.13. Institute a vigorous program of education and self-improvement.14. Put everyone in the company to work to accomplish the transformation. It is everyone's job.	<ol style="list-style-type: none">3. Cease dependency on inspection to achieve quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place.4. End the practice of rewarding business based on price alone. Instead, minimize total cost. Move toward a single supplier for any one item, based on a long-term relationship of loyalty and trust.5. Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease cost.10. Eliminate slogans, exhortations, and targets for the workforce asking for zero defects and new levels of productivity.11. Eliminate work standards and quotas, as well as management by numbers or numerical goals. Substitute leadership instead.

Leadership Points

Deming himself noted that a transformation is not spontaneous; rather it will take place under the guidance of a leader (Deming 1994 p. 116). Any change in how business is done cannot be accomplished without someone leading the way. Leadership is the basis of success, and without it, any business is sure to fail. Someone must step up and facilitate the rest of the organization to accomplish its goals. It is so important that Deming based nine of his fourteen points of management on leadership. There must be leadership in order to make the transformation from the old Western style of management to the new style. The nine leadership points are the key to driving the transformation, and each leadership point illuminates a plethora of benefits an organization could enjoy by implementing them.

Point #1 ➔ *Create a constancy of purpose toward the improvement of product and service, with the aim to become competitive, stay in business, and provide jobs.*

There are plenty of times when employees, even management, become confused as to what the organization is all about and what direction they should be headed. The first thing that must be done in order to accomplish this point is to know what the customer wants. Once this is accomplished, there must be consistency in direction and effort from every single employee. To ensure this, there must be a leader to bring it all together and make sure that everyone is doing this. It is like a captain of a sports team. The goal of a sports team is to win. The job of the captain is to make sure everyone is doing their part in order to accomplish this goal. Each person must try to do what the team wants, and when this happens, success ensues. This explains why some of the best teams ever did not possess the most talent, but rather each person contributed the way

they were supposed to, without losing focus and players not seeing eye to eye. And behind each of these great teams was a great leader that reminded the players of the team's goals and made sure that this happened. The same is true in business. There must be leaders that step up and remind employees of why they are in business. This consistency is essential, because without it, it will be impossible to implement any other points, because there will be no clear direction or idea of what is being done.

Point #2 → *Adopt the new philosophy. We are in a new economic age, and Western management must awaken to the challenge, learn their responsibilities, and take on leadership for change.*

The biggest threat to getting put out of business is under the roof of the organization. If the organization is doing what it set out to do, there is no chance of going out of business, because it will have no problem satisfying customer needs. The biggest dilemma with this point is people's expectation of change to be instant. The reality is, however, there is nothing that is instant. Everything takes some time, and some patience must be exercised before results can be seen. The best meals people eat do not appear out of nowhere. They take time to prepare and perfect. There are numerous threats to the implementation of this point. Too many times, the upper management or board of directors of organizations demand instant results. A manager or President will be fired if the stock price drops or profits subside, even if just for a short time during the implementation of the new system. This pressure is no excuse to pull the plug on the transformation because of this. They must learn to realize that if a change is necessary to improve, the results will most likely not be seen right away. If no patience is exercised by upper management, the implementation will never truly be experienced, and the results will show. In order to really enjoy the fruits of labor, just like farmers who plant

their seeds in the spring and harvest them in the fall, the process must be given time and nurturing in order to grow and flourish.

Point #6 → *Institute training on the job.*

In order to accomplish the goals of the organization, each employee must be properly trained. There is no getting around this fact. When people try to do what they cannot, they become easily frustrated and want to quit. The knowledge of this information makes training that much more important. Once procedures are in place to get from raw materials to customer wants, each employee must know their part in the process and be trained to know how to do their part. It is the leader's job to ensure this is done properly. If the wrong things are being done, it does not matter how good the wrong thing is being done. A worker could be the best red dye maker in the world, but if the customer wants blue dye, it is a total waste. Leaders must know what needs to be done, and then institute training for each process in getting it done so the customer ends up getting what they want.

Point #7 → *Institute leadership. The aim of leadership should be to help people, machines, and gadgets to do a better job.*

A leader brings many inputs to a process and directs them in such a way that the desired results are reached. This means having the knowledge and understanding of what needs to be done, and teaching this, all the while helping everything and everyone involved to do a better job (Deming 1994 p.116). It is not an easy task, however. In fact, being a good leader is one of the most difficult qualities to achieve. A leader does not expect perfection, but still challenges others to do their best. A leader empowers, yet

uses authority when necessary. A leader is a coach, not a judge. Effective leadership is difficult and one of many reasons why organizations struggle. Organizations that do have effective leadership, however, outperform those who do not have effective leadership, no matter how handicapped they may be in other areas. Leadership makes the rest of the business processes much easier to accomplish and manage. Employees respond to a leader, and the results of good leadership are tremendous. The challenge lies in the ability to be a good leader. Deming recognized the importance of leadership, and that is the reason the concept was stressed so much in his fourteen points. It is challenging, but those who respond to the challenge really put the organization in a position to be an industry leader.

Point #8 → *Drive out fear, so that everyone may work effectively for the company.*

The traditional Western style of management has typically been fear-oriented. If employees did not meet certain performance criterion, they were terminated. Most of the time, however, the employee is not to blame. Deming has asserted many times that approximately eighty-five percent of variation comes from the system, not the employee (Evans and Lindsay 487). Working in fear suppresses joy and pride from employees, which will naturally result in a decline in performance. If the people of an organization are destroyed, there is nothing left in the organization to provide what the customer wants. Driving out that fear is what should be desired. Doing this increases the quality of work life, and therefore increases employee's productivity. When there is room for some mistakes, fewer mistakes will actually occur because workers will take more pride in their work and do their best. The result of driving out fear is the optimal work

environment, and it makes no sense to provide any other work environment than this.

Too often this is not the case, and this makes for decreased productivity, higher turnover, and less innovation. Though fear may be a motivational factor, it is not a positive one, and will only bring the organization down in the end.

Point #9 → *Break down barriers between departments. People in research, design, sales, and production should work as a team to foresee production problems and in use by the customer that may be encountered by a product or service.*

Communication is essential in optimizing an organization's performance. When open communication between departments does not exist, there are many problems that make customers unhappy. In response to this, ERP systems have become very popular and are quickly becoming the standard for open communication between departments. ERP systems only opens information between departments. Leadership must be present to ensure not only the dissemination of information, but also ongoing communication and cooperation between departments. The results of this will be plentiful. There will be less rework, better quality, decrease in the time to market, and better relations between employees. It does not matter if the sales department does a wonderful job if they do not know aspects of every other department. The sum of each individual contribution to a product or service should be more than the individual parts, and breaking down barriers between different departments is a productive way of doing just that.

Point #12 → *Remove barriers that rob hourly people as well as people in management their right to the pride of workmanship.*

This may seem like a very subjective statement, but there are many things that can take people's pride away. Almost every aspect of life possesses examples of how this is

done. From grades in school to incentive pay on the job, even to management by numerical goals, each of these foster fear and humiliation. Stamped out is joy in learning or on the job, and extrinsic motivation gradually replaces intrinsic motivation (Deming 1994 p. 122). On the contrary, the emphasis should be on why employees do a job, not the results. Better results would come from workers with a feeling of pride. Some things can simply not be attributed to employees themselves, but from the system. A good leader will recognize this and find other ways to base performance. If this can be accomplished, the results will improve. Instead of ranking employees, company-wide results can be used to determine if the business is running effectively. De-emphasizing individual performance eases the pressure of employees and they can then focus on how to do their job the best way instead of worrying whether or not they are individually getting done what has been set forth by management. They can then work together and, facilitated by a good leader, optimize their performance and greatly improve the company.

Point #13 ➔ *Institute a vigorous program of education and self-improvement.*

The world changes every day. Customers may want something different tomorrow than they do today. How is it possible to anticipate that and reach them in an acceptable amount of time? Education is the answer. Continuous improvement is a term that people hear every day and begin to take for granted in business. Common sense says that the only way to improve is to get better through innovation or new products or services. It is a leader's responsibility to recognize ways to do this and institute ways to continuously learn and improve. It may be through some certification process, classes, or

learning from mistakes, but a leader must emphasize the importance of improvement and find ways to make sure that it happens. Competition is fierce, and there is no room for complacency in the business world. The instant that happens is the instant an organization digs their own grave. As long as there are programs or practices for continuous improvement, a business can expect to compete and compete well.

Point #14 → *Put everyone in the company to work to accomplish the transformation. The transformation is everyone's job.*

Ensuring that everyone is involved with the transformation simply will not happen unless there is leadership present to drive it. The transformation will take time, as well as effort and money. However, it can only be accomplished by man, it cannot be bought. That is why leadership is so important. Leaders get the organization from one point to another. They do this by all of the other leadership points, and when leadership is present and effective, the transformation is well underway. Without leadership, however, it is impossible to make the change. Everyone will do their part, but only if there is leadership there to motivate, persuade, and coach them so there is understanding of the transformation. Good leadership will lead to a more concerted effort, and consequently, make for a much quicker and smoother transition to being able to focus on processes to complete the transformation. Then, and only then, will organizations be able to compete at the highest level.

These points really illustrate the importance of leadership. It is essential that there is someone in an organization that is a leader. This person is more of a coach than

anything else, but a good coach is a good leader. Deming's leadership points emphasize the changes that will occur by implementing a change in the way things are traditionally done within an organization. These changes will not come easily, and as a matter of fact, without a good leader to help coach and facilitate the changes that will occur, it is impossible to successfully implement the change. Though the changes that will occur within the organization are the real benefit to organizations, the benefits will never be seen without a good leader aiding the process and leading the way for everyone else in the organization.

Process Points

Leadership may be the most important factor in creating an optimal work environment, there is no chance of success with the understanding of processes and how to control them effectively and efficiently. Organizations must learn to understand their processes and how to manage them in order to do control them effectively. But how do organizations do this? A quote from a successful US business, Texas Instruments, has had the notion for a long time that “unless you change the process, why would you expect the results to change?” Deming outlined a framework for understanding and monitoring processes. It is impossible to expect results from something that is not understood or done properly. Using Deming’s points as a guide will help any organization understand their processes and begin to work at improving them in order to better satisfy customer’s wants and needs.

Point #3 → *Cease dependency on inspection to achieve quality. Eliminate the need for inspection on mass basis by building quality into the product in the first place.*

This may seem like an odd suggestion, but it implies organization’s trust rests with its employees. But even more so than that, it is based on the simple fact that inspection cannot be built into a product or service. The quality is already there. The results are the only things that are traditionally managed, but this increases costs (inspection) and does not really utilize any knowledge. The only way to improve upon where organizations currently are is to manage processes. Eliminating the total dependency on inspection is a good start to achieve this. The elimination of dependency on inspection to ensure quality automatically places much more emphasis on the

processes and then the snowball effect begins, and the transformation can then begin.

This illustrates Texas Instrument's philosophy and why they believe what they do. It is the only way to really begin to improve.

Point #4 → *End the practice of rewarding business based on price alone. Instead, minimize total cost. Move toward a single supplier for any one item, based on a long-term relationship of loyalty and trust.*

It is natural for organizations to want to have the lowest possible cost. Too often, though, total cost is ignored, and cost of manufacturing or service is concentrated on the most. This does not take into account defects, returns, lost customers, or rework. These things really drive the total cost of the organization up. The problem lies in the delay of the other costs. They do not show up until later, and then it is a mystery to where the high costs came from. An example of this happening is present in the automotive industry. Ford and GM planned to utilize the Internet-marketplace by forcing their numerous suppliers to keep their prices online so they can decide who has the best cost in a split second. Toyota, on the other hand, upon the reception of an invitation to also use this practice, declined because it does not take into account total cost of the supplies. After much discussion, Toyota finally agreed to use the practice, but only for "competitive" components (Heizer and Render 1999 p. C-127). This allows Toyota to utilize the Internet for some parts they could get from anyone, yet still protecting their current relationships that have taken a lot of time and effort to build. This practice enables Toyota the ability to work with their suppliers to answer questions and solve problems. It also demonstrates how finding the best total cost can be achieved. Though an organization may pay more up front for better quality, later on it will most likely

translate into much lower total cost later on. The least total cost is what should be strived for, and in order to do this, organizations must work with, not against, their suppliers.

Point #5 → *Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease cost.*

It is important to have goals for a business. But goals without a method or strategies are nonsense. The methods should be aimed toward being able to satisfy customer wants and anticipating what the customer will want in the future. Staying a step ahead of what is currently being done is a way to bring down total costs of an organization. But what exactly is a system? In his book *The New Economics*, Deming defined a system as “a network of interdependent components that work together to accomplish the goals of an organization” (Deming 1994 p. 50). Components of a system have processes that are necessary to transform inputs into outputs. These processes are the key to success. They must be understood and maintained in order to achieve success. To understand and maintain the processes, there must be proper data and data collection. Proper data collection then also becomes critical. If statistics are properly understood and used for analysis, processes will be better able to be kept under control, and therefore the total cost of the organization can be minimized.

Point #10 → *Eliminate slogans, exhortations, and targets for the workforce asking for zero defects and new levels of productivity.*

It would be very nice to be able to do business and never have a defect. It is simply not possible though. With that in mind, why would any organization force this goal on their employees? Even the best manufacturers and service providers make

mistakes from time to time. Goals such as this are detrimental to any organization for many reasons. First of all, it decreases the morale of the employees because they are very much aware of the fact that they are striving for something that is impossible. It also fosters managing results instead of processes. This will not improve anything, but in reality it will hold the organization back from improvement. There is no need for a defect policy, especially if everyone knows the goals of the organization and there is a leader to make sure the processes are being managed effectively.

Point #11 → *Eliminate work standards and quotas, as well as management by numbers or numerical goals. Substitute leadership instead.*

Management by numbers has been a leading practice of Western management for a long time. There are many problems inherent in this practice. Consequently, these problems have held organizations back from really reaching their full potential. The management by numbers style emphasizes the bottom line, and reflects upper management's real concerns. This, again, does nothing more than affect outcomes in an attempt to reach a monetary goal. It takes everything away from processes and therefore eliminates any room for improvement because there is no knowledge on how to improve because there is no focus on what the real problem is. Eliminating the practice of management by numbers would open many doors never opened before for many organizations. First of all, they can realize what the real factors of success are, and improve those in order to minimize total cost, and at the same time, maximize total profit and customer satisfaction. The focus can then be on processes, not outcomes, and that will ignite a new driving force, the correct driving force, to success in any organization.

The real concrete changes that benefit the organization the most are the changes in processes. The aim of process improvement should be to eliminate all of the variables in the process, thus eliminating the risk of nonconformance. Also, any process that does not add value to a product or service should be eliminated. The mistake that a lot of organizations make is the managing of outcomes instead of the actual processes. This practice does ensure that a quality product or service will be the outcome, but precious money is wasted because there is no focus on how to improve the process to make sure there will be no nonconformities. Process improvement is the key to improving an organization and satisfying more customers, as well as bringing in new customers.

Applications of the 14 Points

People can hear suggestions and possible improvements to an organization without actually recognizing the importance of what is being said. Because understanding is so essential to motivate change, it is important to also have simple examples to shed more light on its importance. Deming recognized the importance of understanding and knowledge, and he also had a couple of simple applications to illustrate the importance of what he was trying to say. The two applications are the Red Beads Experiment and Whack It. Each of these illustrates why the managing of outcomes is unnecessary and very costly. After seeing the applications of the fourteen points, it should become very clear to people within all organizations how it would benefit them to listen to what is being said, and they can begin to see the benefits of implementing the fourteen points within their organization.

Red Beads Experiment

The Red Beads Experiment was used by Deming to show the mistake many organizations make in running their business. The experiment is simple, with 3,200 white beads and 800 red beads mixed in a large Tupperware container. A make-believe company is producing white beads for their customers. They will not accept red beads. The experiment starts with a foreman selecting volunteers, who are six willing workers, a recorder, two inspectors, and a chief inspector. The company's standard is to have each of the six willing workers produce fifty white beads per day. The process is simple: mix the red and white beads together, and then insert a paddle with fifty depressions in it and

remove fifty beads from the container. The willing worker must then take the paddle over to the inspectors to have the beads inspected. The chief inspector then verifies the number of red and white beads and has the recorder record the results. The results are then tallied for all of the willing workers and the results are analyzed (Evans and Lindsay 2002 pp. 512-513).

The results of this experiment are rather obvious. Very rarely, if ever, will a willing worker actually produce fifty white beads in a given day. The result is a shortage of white beads at the end of the week, and the willing workers are forced to work the weekend. The company also works on a merit system, and the best workers are rewarded, while the worst workers are punished. There are also constant reminders (slogans, banners, etc.) to remind the willing workers about the quality they have promised their customers to ensure they produce white, not red, beads. Eventually, the foreman begins to terminate some of the willing workers and replace them with other willing workers. The results of this action are minimal, because the replacement workers do just as poorly as the original willing workers. Eventually, the customers of the company are not satisfied, and cease their business with the organization. The organization is then forced to shut down.

What was wrong with the way that organization ran its business? Actually experiencing the experiment illuminates how foolish the organization was for expecting fifty white beads per day from each willing worker with their knowledge of the variation of beads in the container. But, in all honesty, this should be a major concern. The Red Beads Experiment is a simple illustration, but in reality, what the experiment shows is being done by many organizations, but it just isn't as obvious. Everyone within the

organization knows there is variation in production, but when management demands that no nonconforming products can be produced, employees can become very demoralized. It is simply not fair to demand that employees do something that has been made impossible by the process, not by anything they have any control over. Promises have already been made, and when they cannot be kept due to the variation in the process, customers become frustrated or angry, and business can be lost. This is a huge mistake that many organizations make every day in running their business. Quality simply cannot be inspected into a product or service after the process. Rather, quality is in the process, and therefore, improving the process will improve quality. The Red Beads Experiment, though simple, is a great illustration of some of the mistakes that many organizations make in their attempt to produce quality products and services. The point is that to improve the quality of what customers are purchasing, the “red beads” must be removed within the process. That is the only way to ensure quality, and where is this done? It can only be accomplished by improving processes.

Whack It

Another of Deming’s applications to illustrate the need to implement his fourteen points is Whack It. The point of this application is to focus on processes instead of outcomes. Most people think that making a foolproof way to manage the outcomes will satisfy the customers the most. Though it will produce good products and services, in the end the costs will be higher doing that than managing the process. This means that customers will be paying more than they should have to for what they want. And if any

competitor turns their focus to processes, the organizations that do not will be left far behind.

In Whack It, a group of people are broken up into groups of about five people. The groups must hit a plastic disk with a ruler thirty inches, with tolerances of three inches above or below thirty. With no other resources, each group hits the plastic disk ten times, and records how many of them were within specifications. After those ten attempts, each group is given tools to help them improve, namely wood blocks and masking tape. Once revisions are made, each group's improvements are revealed to everyone.

Most of the time, each group does not focus on the improvement of the actual hitting of the disk. Rather, they focus on finding ways to make sure the disk stays within specifications. They do that by setting up stops at the upper specification limit. Doing this is not the best way to accomplish the improvements sought. Instead, the wood blocks and tape should be used to eliminate the variables in the process of hitting the disk. Things like making sure the ruler is drawn back the same amount each time and stabilizing the ruler and the disk's starting points are what should be the major focus. Any group that made these improvements saw their results drastically improve, even more so than groups that tried to manage the results.

The major benefit of partaking in Whack It is seeing how our thinking normally goes automatically to results instead of processes. People today grow up trying to be the best at whatever they do without actually monitoring how they do it. Consequently, organizations typically also manage the results of products and services instead of the actual process. This needs to change to save money and satisfy current customers, as

well as bring in new customers. The real improvements are made when the processes are managed, not the results.

The primary reason for including applications of what is trying to be conveyed is to increase comprehension by making things more understandable. It is proven that people remember and understand twenty percent more when they hear and see what they are learning (Nitcavic 2003 p. 159). It is a very practical way to illustrate the reasons why certain things are being brought up. In this case, Deming used his applications to show why he was suggesting what he was. Those applications solidified his points and gave more urgency to the fourteen points and why they should be implemented to improve any organization.

Business Implications

Since Deming's time, business has shifted from being primarily manufacturing driven to today's marketplace that is mostly service. Traditionally, Deming has been associated with manufacturing and its processes. Though this is the case, his fourteen points can be applied in all business sectors. There are a plethora of reasons for this. No matter what business an organization is in, they will need great leadership and the control of processes to increase quality and decrease costs. The points are specific enough to know what the fourteen points suggest, but aren't too specific in that they are confined to the manufacturing sector. There are many benefits organizations can capitalize on from the application of Deming's fourteen points, no matter what sector of business an organization is in. There are also consequences of not implementing his fourteen points in each sector also. Both the benefits and consequences will be brought to light in an analysis of each sector.

Manufacturing Sector

Manufacturing is the easiest place to implement the fourteen points, because that was the original target of the points. It is obvious to where and why the points apply in manufacturing, and there are many examples where the fourteen points have been implemented and success has ensued. Japan skyrocketed to the forefront of the manufacturing world soon after focusing their time, money, and energy mainly on these fourteen points. Companies like Honda, Toyota, and Sony remain at the top level of competition today using these points. Likewise, some United States organizations have implemented the fourteen points and they have seen their business catapult to the top

level of their respective industries. Some of these organizations include Texas Instruments, Saturn, and Intel.

Manufacturing essentially takes raw materials and through some transformation processes, turns them into products that customers want. Technology has aided some manufacturing quality improvements, but more needs to be done for more organizations to create a long-lasting advantage over competitors. If manufacturing organizations want to improve their business, implementing Deming's fourteen points would be very beneficial. This would turn the focus to the improvement of processes instead of results. It would also stress the importance of leadership and how to manage the transformation. In the end, if the implementation goes as planned, most, if not all, variability in the manufacturing processes will be eliminated. Also, there would be a continuous improvement initiative with education at the center. The cost of manufacturing would decrease, and the savings could then be passed on to customers, without sacrificing quality. There will be less dependency on inspection. Most of all, each process involved in the manufacturing process will add value to the finished product. This will create a sustainable competitive advantage over other manufacturers and company morale would skyrocket. Likewise, manufacturers who do not follow these guidelines will soon be left behind. Costs will not decrease, but increase, because there will be a high dependency on inspection and managing results. It is much more beneficial to find the cause of variation and stabilize it instead of waiting for nonconformities and eliminating them. Real improvements will be overlooked in order to save a penny here or make a quick dollar there. It is important to realize that price is not the only cost that should be considered. These organizations will be stuck in their current position for a very long time, and

eventually they will lose customers. It only makes sense to follow Deming's fourteen points of management in order to improve. It may be true that results will not be seen immediately, but as wise person once said, the best things in life are worth waiting for. This sector is the easiest one to see how the points apply to their business, and therefore, should make more organizations more apt to implement these improvements.

Since Deming's death, there has been a reduction in the amount of time and energy spent in his fourteen points. That has translated into more focus on management by numbers and less focus on process control. That fact, combined with the fact that over seventy percent of the businesses in the United States today are service based, has resulted in a movement away from Deming and his fourteen points of management. The manufacturing sector, however, still remains the sector in which most of Deming's work is associated. These fourteen points of management can apply to the other sectors also, and make the service and not-for-profit sector much more effective and efficient.

Service Sector

The main difference between service and manufacturing is that the service department does not have a tangible product. The service sector could still capitalize on many of the benefits that the fourteen points can bring. There are some differences in the way operations run in manufacturing and services. However, the service sector still has the need for leadership and the need for reduction of variability in their processes. The service sector can find ways to reduce variability in their processes in various ways. Policies, rules, and guides are all things that can reduce the variation in how a service is performed. Standardization is something that should be sought in the service sector to ensure that every service performed is of an intended quality. Following Deming's

fourteen points would surely ensure that this is done. Some typical results of poorly ran service organizations include a lot of variation in handling the same processes, a lot more customer complaints, and consequently, less business. Again, a very sustainable competitive advantage can be achieved by implementing Deming's fourteen points. This is what every organization seeks, and if it is attainable and there is a guideline for attaining this, it would make absolutely no sense not taking advantage of the opportunity.

There are various industries within the service sector that can really capitalize on the implementation of Deming's fourteen points, especially in today's ever-changing marketplace. Some of these industries include sports and entertainment, industries. Each of these industries must be responsive to their customers while remaining unique in the services they provide. By focusing on process improvement, each of these industries within the service sector can greatly improve upon their current status, which today, is in decline, though the percentage of service organizations is rising.

The sports world today is in a state of decline. Both the MLB and the NHL have had teams file for bankruptcy in the past two years, and the industry as a whole is struggling right now. The fourteen points of management could relieve a lot of the stress sports is experiencing today. Each sport today has its own agreement about how each team within the sport will function and use revenues. This is a good start, but the real problem is more difficult to solve. General managers are under such intense pressure to field a winning team every year that they lose focus on how to effectively run a team and turn to short-term results. This practice can be disastrous in many situations. A recent example of this is the 1998 World Series Champion Florida Marlins. That year, the team spent over 350 million dollars to bring in free agents in hopes of winning that year. The

approach worked for the season, as the Marlins won the World Series, but five years later, they have yet to even contend for the playoffs since that time. The free agents were either traded or released the next season (www.mlb.com). All of the money that was spent was worth it for one year, because that year was the highest ever for the team in revenues. Over the long haul, however, the team has gone from a World Series Champion to being in danger of being contracted from MLB because of their terrible revenues and profits. The Florida Marlins example is just one of many examples of how many general managers in all sports focus on a one year winner instead of building a team by focusing on processes and leadership. The results of running teams this way are dismal in the long run. Long-term results, not short-term results should be sought, but that focus can be lost in trying to satisfy too many people while sacrificing the ways things should be ran. Returning to or beginning to focus business operations within sports around Deming's fourteen points could reverse the current downward spiral that sports is in today.

The movie and music industry has also been in a state of decline in the past few years. Movie profits fell eight percent from 2001 to 2002 (www.mpaa.org), while compact disk sales dropped four percent in the same time frame (www.spin.com). While some of the blame can be put on the economy, a major reason behind the decline is the lack of standardization and policies for each possible situation. Standardization and policies can be a difficult task to accomplish in the service industry, especially because most situations are unique in their own way. However, it is possible to find similarities in the some of the processes in the music and movie business. Consistency in these processes can result in an improvement of results. A lot of profits from these two

entertainment industries come from sales, but the costs can become outrageous if there is no consistency. Since 2000, the most successful record label has been Interscope Records. According to the March 2003 issue of *The Source* magazine, an underlying reason for their success is their adherence to their procedures and policies, no matter what the situation or who the artist may be. The desired consistency is also impossible to attain without the guidance of good leaders. It is very possible to apply Deming's fourteen points of management in the entertainment industry, and the use of the points as a guideline to driving organizations within the industry could result in a lot of improvement.

Other industries in the service sector can also apply Deming's fourteen points into their organization to realize some real process improvements. Ontario Systems, a software development organization, does keep Deming's ideas at the forefront of their operations. They have thrived since refocusing their organization around the fourteen points about fifteen years ago when they were emerging as a premiere software development organization under the guidance and leadership of their current CEO Kelly Stanley (www.ontario.com). Each industry within the sector could also see improvements because the processes of each business are where the value is added. The processes are where the quality is, and the results of the processes are seen in the results. The management of results wastes resources because there is no focus on what caused a nonconformance, just the elimination of the nonconformance. This means the nonconformance will appear again if nothing is done to prevent it in the future. The costs associated with not finding the causes of nonconformance justify the importance of process improvement. Some organizations have realized this fact, and put Deming's

point to use in their organization. The service sector as a whole, like manufacturing, has certain processes to attain output from input. This sector has the potential to realize great benefits from turning their focus to Deming's fourteen points of management.

Not-for-Profit Sector

Not-for-profit organizations are just what they imply; not for profit. However, many benefits could arise from the reduction in the costs of running these not-for-profit organizations. A key way in which reducing costs in every business is process improvement. Each industry within the sector has certain processes to achieve what they set out to accomplish. Control and improvement upon the processes are where real improvements are attained, and where costs can be reduced. It is easier for this sector to implement Deming's points because of their lack of pressure to produce immediate results. However, for a true refocus to process and leadership, patience and time will be necessary. The long-term results of this kind of improvement can make the not-for-profit sector soar to new heights. The focus would be different in each industry within the sector, such as public education and government. There is the need for process and leadership improvement in each industry and each can be elevated to a new level of quality by turning their focus to process improvement and leadership.

Education is a very subjective sector. The reason for this is there is not set way a teacher must present material to their class. This is a good thing, but makes standardization of procedures and policies difficult expectations. The results of education are based on a merit system, and each school provides their instructors with a guideline for what should get done over the course of a given time frame. Grades are given based

on performance. Grades do not always reflect the amount of learning attained however. This causes many students to strive to just get good grades and not focus on the learning, the management of outcomes instead of the learning process. In a 1996 article titled “Should Rewards Be Given for Good Grades”, Alan Wong revealed that eighty to ninety percent of students surveyed in the United States care more about good grades than actual learning. This should not be the focus of students, because that will translate into the management of outcomes rather than processes later in life. This is the best way to promote learning, though, especially since people learn at different rates and some people try harder than others. While it is true that grades are a reflection of the understanding of the subject matter, it is important to remember that there are other factors that determine the actual grades obtained, like natural ability, work ethic, and environmental factors. This is a reason why it is difficult to remove variability from the education process. However, teachers need to be good leaders and try to motivate and inspire their students to achieve as much as they can. They need to stress the importance of learning and try to downgrade the importance of grades. The teachers that do this while adhering to the goals set forth by the public institution are the ones that are the most successful. Though it may not seem like it at first glance, Deming’s points can be applied to education. Teachers can be good leaders and promote learning over grades, and they can also do their best to make the most of each student’s learning process.

Governments can really benefit from the implementation of Deming’s fourteen points by reducing variability and increasing the government’s efficiency. The government provides so many services and makes many products, but everything is under their control. This can create an advantage but also creates a lot of chaos if processes are

not managed effectively. Since things are under the control of one entity, a policy could hold for many different products or services. So, though it would take more time, if Deming's fourteen points were used in government practices, it could be very beneficial. A good example of how this is already done is the United States military. There are set procedures for almost every possible situation, taking away a lot of variation. There is also very good leadership present in the military. It is the same, no matter if someone is in the army, navy, or air force. So for similar products or services, the government could use similar practices. If Deming's fourteen points were at the center of all of these things, there would be a lot more consistency in the way everything is done and this would make governments run much more smoothly. In the United States, some of these areas include the tax department and spending priorities. These areas could see a lot of improvement if processes were simplified and set for similar situations. The result would be more consistency and a lot less confusion. If the fourteen points is not the center of the way things are carried out, there will be much more variation in the way things are done, and the result will be a lot of confusion and inefficiency.

The not-for-profit sector as a whole could really benefit from the focus on process improvement and good leadership. This focus would emphasize the importance of improving the sector instead of controlling the outputs of the sector. Though it is still important to ensure that the outputs of this sector are of good quality and use, this can be achieved through management using Deming's fourteen points as a foundation. Though each industry within the sector differs in their own way, Deming's fourteen points apply to each one because no matter what industry an organization is in, the management of processes and the importance of leadership is present and necessary for improvement.

Every single business sector can benefit from implementing Deming's fourteen points. Deming used manufacturing as his target audience, but he also laid the foundation for success in every other business sector as well. It would be foolish for organizations not to capitalize on the benefits that could be reaped from an undertaking such as this. The original aim of the fourteen points was in the manufacturing sector, but because of the increase in the number of service organizations and increase in competition worldwide, true competitive advantage can be achieved through Deming's fourteen points of management, regardless of the business sector an organization falls into.

Conclusion

Since Deming's death in 1983, there has been a gradual decline in the use of his knowledge, suggestions, and ideas. This trend is very unfortunate because he is the man who spearheaded the total quality management principles that are used today. His goal was to transform organizations from results-oriented to process-oriented in order to reach a level of optimization. His points outline the ideas that enable organizations to improve its productivity and quality, and they focus on leadership and processes. These two concepts alone can make a difference in organizations, no matter what business sector they are located.

Today, there is an increased need for a refocus on Deming's fourteen points of management. There is more intense competition due to globalization and the saturation of many markets. Many economies are in the midst of a valley right now. The organizations that can manage and improve their processes and provide good leadership to their organization are the ones that will rise to the upper echelon of their respective industries. It has happened in the past, and will continue to be the case in the future.

There is no real secret to success. Deming himself noted that his ideas are not rocket science. As soon as an organization stop managing results and start to focus on processes, the results will follow. These are not short-term results that should be the real goals that are strived for. Long-term results are the real benefit from the focus on Deming's fourteen points of management. These results have been seen by companies from all business sectors, such as Honda, Texas Instruments, Ontario Systems, and Sony. There are numerous other organizations that have benefited from the use of Deming's

fourteen points, but more organizations have a real opportunity that they are passing up today.

Quality is an important characteristic in products and services today. Many approaches to quality have been used throughout the years, and the most popular is total quality management. Many of the underlying principles that make up the TQM concept came from a man named W. Edwards Deming. The concepts that Deming incorporated into TQM are process control and effectively leadership. These two concepts are the center of his fourteen points of management. Since TQM is such a popular goal of organizations today, it is a mystery as to exactly why there has been movement away from Deming's fourteen points of management. Revisiting his fourteen points illuminates the criticality of process improvement and leadership to the success of organizations, regardless of sector. It is important to align these two concepts into all quality measures of organizations today in order to truly pursue continuous improvement.

Works Cited

1. Cohen, Oded and Lepore, Domenico. (1999). Deming and Goldratt, The Theory of Constraints and The System of Profound Knowledge. Great Barrington, MA: The North River Press Publishing Corporation.
2. Deming, W. Edwards. (2003). The New Economics, 2nd Edition. Cambridge, MA: MIT, Center for Advanced Educational Services.
3. Heizer, Jay and Render, Barry. (2000). Principles of Operations Management, 4th Edition. New York City, NY: Prentice Hall Publishing Corporation.
4. Landis, Gary. (2002). Lean Manufacturing: A Valid Technique of An Attempt to Get More for Less?.
5. www.mlb.com [accessed February 9, 2003].
6. Murray, Sonia. (2003, March 5). "Mogul Matters". *The Source*. pp. 86-90.
7. Nitcavic, Richard. (2003). Fundamentals of Public Communication. Plymouth, MI: Hayden-McNeil Publishing, Inc.
8. www.ontario.com [accessed April 25, 2003].
9. www.spin.com [accessed April 22, 2003].
10. www.vtaid.com [accessed April 20, 2003].

Acknowledgements

- ~ I owe great thanks to Dr. Enar Tunc for advising me this semester as I developed and eventually finished my thesis. Thank you for your support and guidance, as well as your willingness to take on the role of my advisor, especially with your already busy schedule. I really appreciate it.
- ~ I would like to thank Mr. Ron McCoy for helping me realize a topic that would be relevant and of interest to me to create something that is my capstone achievement at Ball State University
- ~ I would also like to thank the Central Indiana APICS Chapter for all of their support and knowledge, helping me to achieve an understanding of business that I can use to learn continuously and teach others.
- ~ I would finally like to thank Ball State University and the Honors College for preparing me for life after college, and for providing me an excellent education and opportunity for me to reach my potential.